

CLAIMS

What is claimed is:

1. A refrigerator, comprising:
a refrigerator compartment and a freezer compartment partitioned from each other ;
a temperature-controlled chamber provided in the refrigerator compartment so as to be partitioned from the refrigerator compartment;
a cool air inlet port to introduce cool air from the freezer compartment into the temperature-controlled chamber; and
a cool air discharging duct to discharge the cool air from the temperature-controlled chamber into the freezer compartment.
2. The refrigerator according to claim 1, further comprising a freezer compartment evaporator mounted at a portion of the freezer compartment, and wherein the cool air discharging duct comprises:
an inlet connected to a cool air discharging passage provided at the temperature-controlled chamber to guide the cool air from the temperature-controlled chamber to the cool air discharging duct, and
an outlet of the cool air discharging duct arranged at a position adjacent to an inlet of the freezer compartment evaporator to introduce the cool air from the cool air discharging duct into the freezer compartment evaporator .
3. The refrigerator according to claim 2, wherein the outlet of the cool air discharging duct is downwardly inclined toward the inlet of the freezer compartment evaporator.
4. The refrigerator according to claim 3, further comprising a heater mounted to the outlet of the cool air discharging duct which is downwardly inclined to defrost the outlet .
5. The refrigerator according to claim 2, further comprising an intake damper installed in the cool air inlet port so as to open or close the cool air inlet port.
6. The refrigerator according to claim 5, further comprising a cooling fan mounted at a portion of the temperature-controlled chamber so as to be positioned adjacent to the cool air inlet port to forcibly circulate the cool air from the freezer compartment through the temperature-

controlled chamber and the cool air discharging duct to the freezer compartment evaporator.

7. The refrigerator according to claim 6, wherein the intake damper comprises a thin plate, thus opening the air inlet port in response to the cool air flowing into the temperature-controlled chamber when the cooling fan is operated, and closing the cool air inlet port in response to a stoppage of flow of the cool air when the cooling fan is stopped.

8. The refrigerator according to claim 6, further comprising a temperature sensor mounted in the temperature-controlled chamber, to control an operation of the cooling fan, thus allowing an interior of the temperature-controlled chamber to be maintained at a preset temperature.

9. The refrigerator according to claim 1, wherein the temperature-controlled chamber comprises a rear insulation wall, upper and lower insulation walls, and side insulation walls, and is opened at a front thereof, with a drawer to store items being put into the temperature-controlled chamber through the open front of the temperature-controlled chamber.

10. The refrigerator according to claim 2, wherein the cool air inlet port has only an intake damper installed so as to open or close the cool air inlet port.

11. The refrigerator according to claim 5, further comprising a discharging damper mounted at the inlet of the cool air discharging duct so as to control flow of cool air in cooperation with the intake damper.

12. The refrigerator according to claim 10, further comprising a discharging damper mounted at the inlet of the cool air discharging duct so as to control flow of cool air in cooperation with the intake damper.

13. A method of cooling a compartment in a refrigerator, comprising:
sensing a temperature of the compartment;
operating a fan when the temperature sensed is above a predetermined temperature;
circulating forcibly cool air from a freezer in the refrigerator when the fan operates;
opening an air inlet port that opens to the compartment with the circulating cool air; and
cooling the compartment with the circulating cool air.

14. The method of cooling a compartment in a refrigerator according to claim 13, further comprising:

closing the air inlet port that opens to the compartment when the temperature sensed is below the predetermined temperature.

15. The method of cooling a compartment in a refrigerator according to claim 13, further comprising:

discharging the air from the compartment that was cooled into a duct;
guiding the discharged air into an evaporator of the freezer; and
mixing the discharged air with the cool air in the freezer.

16. The method of cooling a compartment in a refrigerator according to claim 15, further comprising:

heating at least part of the air guided to the compartment flowing to the freezer, to remove frost; and
collecting water from the heating of the frost.

17. A refrigerator, comprising:
a first compartment and a second compartment;
a temperature-controlled chamber provided in the first compartment;
an inlet port to introduce a gas from the second compartment into the temperature-controlled chamber; and
a discharging duct to discharge the gas from the temperature-controlled chamber into the second compartment.

18. The refrigerator according to claim 17, wherein an inlet of the discharging duct is connected to a discharging passage provided at the temperature-controlled chamber to guide the gas from the temperature-controlled chamber through the inlet of the discharging duct to the discharging duct, and an outlet of the discharging duct is arranged at a position adjacent to an inlet of a second compartment evaporator to introduce the gas from the discharging duct into the second compartment evaporator, the second compartment evaporator being mounted at a portion of the second compartment.

19. The refrigerator according to claim 18, wherein the outlet of the discharging duct is downwardly inclined toward the inlet of the second compartment evaporator.

20. The refrigerator according to claim 18, further comprising a heater mounted to the outlet of the discharging duct which is downwardly inclined.

21. The refrigerator according to claim 19, further comprising an intake damper installed in the inlet port at a side around the temperature-controlled chamber so as to open or close the inlet port.

22. The refrigerator according to claim 19, further comprising a fan mounted at a portion of the temperature-controlled chamber so as to be positioned adjacent to the air inlet port, thus forcibly circulating the gas from the second compartment through the temperature-controlled chamber and the discharging duct to the second compartment evaporator.

23. The refrigerator according to claim 21, wherein the intake damper comprises a plate to open the inlet port when the fan is operated, and close the air inlet port when the fan is stopped.

24. The refrigerator according to claim 22, further comprising a temperature sensor mounted in the temperature-controlled chamber, to control an operation of the fan.